sufficient to allow of profitable use of the soil for farming or raising stock. For this reason Dr. Griffith Taylor, who is becoming well known for his work on Australian meteorology, has recently produced a volume devoted entirely to the rainfall of the continent and its control over vegetation. The subject is dealt with in a very thorough manner, and it would be hard to overestimate the value of such a work in the case of a young agricultural country looking to great developments in the near future. To obtain a just appreciation of the meteorological conditions which govern the weather of the continent it is necessary to remember that the southern tropical high-pressure belt crosses the southern part of the country, while the equatorial low-pressure area lies off the northern coast. These systems fluctuate north and south with the sun, causing a very marked annual period in the rainfall. Thus the northern districts receive most of their rainfall in the southern summer, when cyclones from the northern low-pressure area strike the coast. On the other hand, the southern districts at this time of year lie under anticyclonic conditions and receive little rain, but in the winter, when the high-pressure belt has moved northward, the westerly winds of the southern oceans reach this region and the rainy season occurs. This movement to the north and south of the pressure systems and associated phenomena is well illustrated by an ingenious "Solar Control Model" which forms the frontispiece of the present volume.

To the casual student who is acquainted with the desert regions which cover a large part of Western Australia and has been in the habit of regarding the whole district as one of great aridity it may come as a surprise to learn that over a small coastal area running southwards from Perth the annual rainfall amounts to more than 30 in., a quantity which is equalled only in narrow belts along the south-eastern, eastern, and northern coasts. Furthermore, a map which Dr. Taylor has prepared shows that the "rain reliability" from year to year reaches a very high level in this tract of Western Australia, so that the lot of the farmer should be a happy one, at least so far as rainfall is concerned. The most variable and untrustworthy rains are found in the arid centre of the continent, where the annual fall amounts to about 6 in. only, and fluctuates widely from year to year. The chart of "rain reliability" forms a valuable feature of the book, as in regions where the fall is barely sufficient for farming it may make all the difference whether an almost constant fall can be expected from year to year, or whether periods of exceptional rain are likely to be followed by spells of drought through which no farming can be carried on. In a previous publication the author has made use of the "climograph," or temperature-humidity curve, for indicating graphically the suitability of a climate for man. As regards suitability for plant life rainfall is a more important element than humidity, and the "hythergraph" is here introduced to indicate changes of temperature and rainfall throughout the year. Hythergraphs are reproduced for typical extra-Australian wheat-, rice-, and cotton-growing lands, and by comparison with Australian curves indicate the possibilities of the different parts of the country for these crops. Tea and coffee growing is also considered in the same way.

For a detailed discussion the country is divided into fifteen districts, for each of which the conditions are considered very fully. An attempt is made to ascertain the type of pressure distribution which causes rain in the different regions, and each fall in the course of the lustrum 1910–14 is ascribed to one or other of certain pressure types. It may be questioned whether the cause of rainfall suggested on p. 58, the chilling of an air mass by contact with a colder body of air, is really productive of appreciable rain. In most cases of this kind an easier explanation seems to be found in the convection effects which are likely to be set up. The work is very fully illustrated, but one misses a good map of Australia whereon the different towns and districts mentioned could be located without the trouble of turning up an atlas. It is impossible to read a work of this kind without regretting that meteorologists have devoted so little attention in the past to measurements of evaporation. There can be few districts of the world for which any adequate evaporation data are available, and yet in a country like Australia the loss of water by this means must be second only in importance to the supply by rainfall. A very large amount of trouble must have been involved in the preparation of such a comprehensive work as that under notice, and students of Australian meteorology, as well as those responsible for the development of the country, have reason to be grateful to Dr. Griffith Taylor for the result of his labours.

J. S. D.

GUSTAV MAGNUS RETZIUS.

PROF. GUSTAV RETZIUS, who died at Stockholm on July 21, aged seventy-seven, did more to enrich anatomical literature than any other man of his time. By his death there comes to an end a line of anatomists that has made Sweden famous for a century and more. Retzius's grandfather was professor of natural history at Lund; his father, Anders Retzius, the intimate friend of Johannes Müller, held the chair of anatomy in the Caroline Medico-Chirurgical Institute, Stockholm, in which he was in due time followed by his son Gustav, who devoted his life to working out, by improved methods, lines of research commenced by his father. In 1842, the year in which Gustav was born, Anders Retzius recognised that the form of the human head was an important mark of race, and initiated the system of describing the shape of heads and skulls by the proportion which their breadth bears to their length. Like his father, Gustav Retzius was an anthropologist

© 1919 Nature Publishing Group

as well as an anatomist; as a young man of twenty-two he collected, edited, and published his father's anthropological researches, and from 1864 until his death devoted much of his time to unravelling the history of the inhabitants of Scandinavia. In 1900 he published a magnificent atlas, giving exact reproductions of ancient Swedish skulls; in 1902 he and his colleague, Prof. Karl Fürst, brought out an exhaustive work on the anthropology of Sweden. He published several papers on the Lapps and on the Finns. In 1909 he was invited by the Royal Anthropological Institute of this country to give the Huxley lecture, which he devoted to "The So-called North European Race of Mankind." He recognised the merits of the race, but took, as we think, an unnecessarily gloomy view of its future.

Great as were Retzius's contributions to anthropology, his extensive researches in anatomy are even more important. His father's first publication, in 1822, was devoted to the anatomy of the Myxine; the son continued that work. In conjunction with his colleague, Prof. Axel Key, who held the chair of pathology, Retzius published in 1875–76 a monograph in two great and splendidly illustrated volumes, which is still the standard work in all that relates to the cerebro-spinal coverings and spaces. Perhaps the main interest of his life was his investigations of the intricate internal ear or labyrinth of vertebrate animals, an account of which he published in 1881–84. His monographs on the structure of the cortex of the brain, on the end-organs of nerves, and on the brains of human races and of anthropoid apes, and his more minute researches on the morphology of spermatozoa and of nuclear structure, will provide biologists for all time with a sure groundwork on which to base their speculations. He was content to gather the facts and leave to others the more pleasant task of interpreting their meaning. He had the fortune to marry a lady who not only was in the deepest sympathy with his life's work, but also made it financially possible for him to place his researches at the disposal of all the world in a form which has earned the envy as well as the gratitude of every anatomist.

A. KEITH.

NOTES.

THE meeting of the International Research Council, which was opened at Brussels on July 18 in the presence of the King of the Belgians, concluded its labours on July 28. Much successful work was accomplished. The statutes of the International Council were finally agreed to, and unions embracing the whole subject of astronomy and the various sections of geophysics were formed. In other branches of pure and applied science proposals for the formation of international associations were discussed and formulated. These will have to be submitted to the authorities concerned in the different countries before they can be formally adopted. A resolution inviting the co-operation of nations that had remained neutral during the war was adopted unanimously. Brussels was selected as the legal domicile of the International Research Council. Its triennial meetings will be held in that city, and gifts or legacies will be administered according to Belgian law. But the associations dealing with special subjects will probably follow the established custom of holding their conferences successively in different countries. The secretariat of the council will be at Burlington House, where the Royal Society has placed a room at the disposal of the general secretary.

SIR ARTHUR BOSCAWEN, Parliamentary Secretary to the Board of Agriculture, moved the second reading of the Forestry Bill on August 5 in the House of Commons. In the discussion reference was made to the large expenditure of between 40,000*l.* and 50,000*l.* which is to be spent in the setting up of the new staff and other outlay; the divorce of agriculture from forestry, with the consequent impossibility of dealing adequately with the small holdings policy; and the friction which may arise between the agricultural and forestry authorities. Sir Philip Magnus pointed out that the chief defect of the Bill lay in its silence on the necessity of having on the central authority a preponderance of fully qualified scientific experts. He warned the supporters of the Bill and the Government of the grave danger of proceeding with this new afforestation scheme without the guidance of scientific advice, the neglect of which in the past had so often resulted in Government schemes ending in disaster. This aspect of the Bill he proposed to insist upon in the Committee stage of the Bill. Mr. Barnes, in replying as a Minister to the criticisms made, said he thoroughly agreed with Sir Philip Magnus as to the need for scientific men among the Commissioners, and that the point would be sympathetically considered

A COMMITTEE has been formed, under the chairmanship of Lord Rothschild, to establish a memorial to the late Frederick Du Cane Godman, in acknowledgment of his lifelong devotion to the interests of natural history and in grateful testimony of the many valuable benefits conferred by him in promoting the study of natural science in this country. At a meeting of the committee held at the Natural History Museum in April last it was resolved that the memorial should take, primarily, the form of a bronze tablet with medallion portraits of Mr. Godman and of the late Mr. Osbert Salvin, Mr. Godman's lifelong friend and collaborator in all his scientific enterprises, and that this tablet, with a suitable inscription, should be offered to the Trustees of the British Museum, to be placed in the Natural History Museum at South Kensington. The committee hopes to be in a position to do something additional to perpetuate the memory of Mr. Godman by helping to establish a less local form of memorial. Dame Alice Godman and her two daughters have offered to found an exploration fund with the sum of 5000*l.*, the proceeds of which are to be devoted to making collections for the advancement of science and for the benefit of the Natural History Museum. The committee, therefore, proposes that any amount received by it over and above that required for the bronze tablet shall be added to the exploration fund. It is hoped that this may form a permanent basis for future donations and bequests for the same purpose. The committee confidently asks for funds to carry out this scheme. Contributions should be sent to Mr. C. E. Fagan, hon. treasurer, Godman Memorial Fund, Natural History Museum, Cromwell Road, London, S.W.7.

THE autumn meeting of the Institute of Metals, under the presidency of Prof. H. C. H. Carpenter, will be held in Sheffield on Wednesday and Thursday,

© 1919 Nature Publishing Group